

33
Cont

a first electrical traction motor directly underneath the first generator and electrically connected to the first generator;

a second electrical traction motor adjacent to the first motor and directly underneath the second generator and electrically connected to the second generator;

a step-down gear downstream from the first and second electrical traction motors; and

a connecting flange, between the internal combustion engine and the first and second generators for retrofittably connecting the internal combustion engine to the electrical transmission to replace an existing automatic transmission.--

Gen - 18 - Eng

REMARKS

- what is reflecting the transmission
- is the connecting flange a transmission? "electrical" transmission

The drawings are objected to as not showing every feature of the invention specified in the claims. This objection is respectfully traversed.

Page 3, lines 16-19 of the present application disclose that Figures 1 and 2 are top and bottom views of an electrical transmission according to the present invention, respectively. Accordingly, as seen from the top, the first and second motors are underneath the first and second generators and hidden from view. As seen in Figure 2, a second electrical motor 9 is next to the first electrical motor 8. Therefore, the drawings are believed to show every feature of the invention specified in the claims.

Claims 3 and 4 were previously pending in the application. New claim 5 is added. Therefore, claims 3-5 are presented for consideration.

Claims 3 and 4 are rejected under 35 USC §112, second paragraph, as being indefinite. Claims 3 and 4 are amended and are believed to overcome the rejection. Regarding the recitation of a gear transmission, the step-up gear transmits a rotating force of the internal combustion engine 7 to the generators 1, 2. One having ordinary skill in the art would understand the term transmission as used in claim 3.

Claims 3 and 4 are rejected as being unpatentable over ROWLETT 4,233,858 in view of SHAMOTO et al. 5,801,497 and BRUSAGLINO et al. 4,109,743 and ordinary skill in the art. This rejection is respectfully traversed.

Claim 3 recites a first generator coupled to an output shaft of an internal combustion engine via a step-up gear and a second generator coupled to the output shaft of the internal combustion engine via the step-up gear and a step-down gear arranged downstream from a first electrical traction motor and a second electrical traction motor as a summator gear train.

By way of example, Figure 1 of the present application shows a first generator 1 coupled to an output shaft 6 of an internal combustion engine via a step-up gear 5. The second generator 2 is coupled to the same output shaft 6 of the internal combustion engine via the step-up gear 5. As seen in Figure 2,

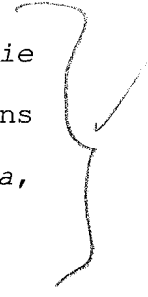
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for example and as disclosed on page 3, line 33 through page 4, line 1 of the present application, the electrical motors 8 and 9 output mechanical drive power generated by step-down reduction gear 10 which is a common summator gear train. Accordingly, motors 8 and 9 output power via a single step-down gear 10.

The Official Action states that ROWLETT teaches an electrical transmission except ROWLETT does not disclose a motor next to another motor. This shortcoming is attempted to be overcome by combining ROWLETT with SHAMOTO et al. SHAMOTO et al. teach first motor MG2 next to a second motor MG1.

However, as stated in the Official Action the combination of ROWLETT and SHAMOTO et al. does not teach or suggest a second generator and gears. This further shortcoming is attempted to be overcome by combining ROWLETT and SHAMOTO et al. with BRUSAGLINO et al. BRUSAGLINO et al. teach first and second motors 7, 7a connected to first and second generators 5, 5a and that the generators are connected to an internal combustion engine 2, 2a via step-up gears 9, 9a. BRUSAGLINO et al. further teach a reduction gearbox 8, 8a downstream of electric motors 7, 7a, respectively.

MPEP §2143.03 states that to establish *prima facie* obviousness of the claimed invention, all the claimed limitations must be taught or suggested by the prior art. *In re Royka*, 490F2d 981, 180 USPQ 580 (CCPA 1974).



As noted above, both the first and second generators of the present application are coupled to the same output shaft of the internal combustion engine via a single step-up gear as recited in claim 3.

As noted in the Official Action, neither SHAMOTO et al. nor ROWLETT discloses the use of a second generator. BRUSAGLINO et al. teach first and second generators 5 and 5a. However, each generator 5, 5a is connected through a respective gear 9, 9a which in turn are connected to individual turbines 2, 2a. Accordingly, none of the cited references discloses or suggests a first generator coupled to an output shaft of an internal combustion engine via a step-up gear and a second generator coupled to the output shaft of the internal combustion engine via the step-up gear as recited in claim 3.

Shamoto top!
Brusaglino et al.
does

In addition, as stated in the Official Action, neither ROWLETT nor SHAMOTO et al. disclose the use of gears. BRUSAGLINO et al. disclose electric motors 7 and 7a connected to gearboxes 8 and 8a, respectively. The output of gearboxes 8, 8a are connected to wheels 1, 1a, respectively, of the vehicle. Accordingly, each individual gearbox 8, 8a is connected to a separate wheel 1, 1a and is not a step-down gear arranged downstream from the first electrical traction motor and the second electrical traction motor as a summator gear train as recited in claim 3.

not specified enough

Since each of the claim limitations are not taught or suggested by the cited prior art, *prima facie* obviousness has not been established. Accordingly, withdrawal of the rejection under §103 is respectfully requested.

Claim 4 depends from claim 3 and further defines the invention. For the reasons set forth above regarding claim 3, claim 4 is also believed patentable over the cited prior art.

New claim 5 also recites similar features as claim 3. The comments above regarding claim 3 are equally applicable to claim 5. In addition, claim 5 further recites that the connecting flange is retrofittably connected to the internal combustion engine for replacing an existing automatic transmission.

As disclosed on page 2, lines 23-33 of the present application, an electrical transmission of the present invention allows existing vehicles to be retrofitted by replacing the existing automatic transmission with an electrical transmission. The arrangement of the generators above the motors allows for a compact design and a simple retrofit.

The cited prior art does not disclose or suggest retrofittng electrical transmissions to replace existing automatic transmissions. In fact, the cited prior art could not teach such a feature, because the arrangement of the elements taught by the prior art does not suggest the compact design of the present application.

SCHMIDT et al. S.N. 09/600,827

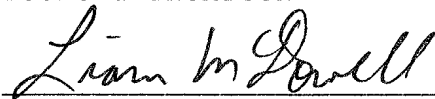
In view of the present amendment and the foregoing remarks, it is believed that the present application has been placed in condition for allowance. Reconsideration and allowance are respectfully requested.

Attached hereto is a marked-up version of the changes made to the claims. The attached page is captioned "VERSION WITH MARKINGS TO SHOW CHANGES MADE."

Respectfully submitted,

YOUNG & THOMPSON

By



Liam McDowell
Attorney for Applicants
Registration No. 44,231
745 South 23rd Street
Arlington, VA 22202
Telephone: 521-2297

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Claim 3 has been amended as follows:

--3. (amended) An electrical transmission, comprising:
a step-up [reduction] gear [operating as a transfer
case];

a first generator coupled to an output shaft of an
internal combustion engine via the step-up [reduction] gear;

a second generator coupled to the output shaft of the
internal combustion engine via the step-up [reduction] gear;

a first electrical traction motor arranged underneath
the first generator and the second generator and electrically
connected to the first generator;

a second electrical traction motor arranged next to the
first electrical traction motor and underneath the first
generator and the second generator and electrically connected to
the second generator;

a step-down [reduction] gear arranged downstream from
the first electrical traction motor and the second electrical
traction motor as a summator gear train; and

a connecting flange, the step-up gear being integrated
[in] into the connecting flange, between the internal combustion
engine and the first generator and the second generator.--

SCHMIDT et al. S.N. 09/600,827

Claim 4 has been amended as follows:

--4. (amended) The electrical transmission according to claim 3, wherein[:] the step-up [reduction] gear is designed as a gear transmission.--